CLAIMS:

1. Apparatus for remote monitoring of a field of view comprising:

a monitoring station; and

remote sensing equipment at a site remote from said monitoring station, said remote sensing equipment comprising:

an infrared detection apparatus that monitors said field of view for at least two wavelengths of infrared radiation corresponding to an adverse atmospheric condition and produces temperature information based on the monitored infrared radiation;

a processor for processing said temperature information to determine whether an alarm condition for said adverse atmospheric condition is met; and

communication means for sending data to said monitoring station if said alarm condition is met.

2. Apparatus as claimed in claim 1, wherein said processor processes said temperature information to produce temperature difference information and processes said temperature difference information to determine whether said alarm condition is met.

3. Apparatus as claimed in claim 1, wherein said infrared detection apparatus produces temperature information that pertains to a plurality of portions of said field of view.

4. Apparatus as claimed in claim 3, wherein said processor processes said temperature information to produce temperature difference information as a temperature difference image and said plurality of portions of said field of view are represented as pixels in said temperature difference image.

5. Apparatus as claimed in claim 3, wherein said processor produces temperature difference information in the form of temperature difference values for said plurality of portions of said field of view.

6. Apparatus as claimed in claim 5, wherein said alarm processor statistically evaluates said temperature values against an expected distribution of temperature values.

7. Apparatus as claimed in claim 1, wherein the data sent by said communication means comprises an alarm signal.

8. Apparatus as claimed in claim 3, wherein the data sent by said communication means comprises said temperature difference image.

9. Apparatus as claimed in claim 2, configured to monitor said field of view for sulphur dioxide and wherein said temperature difference information is based on the temperatures $T_{8.6}$, $T_{10.0}$, $T_{11.0}$ and $T_{12.0}$ at four wavelengths, 8.6 µm, 10.0 µm, 11.0 µm and 12.0 µm for each portion of said field of view.

10. Apparatus as claimed in claim 9, wherein said infrared detection apparatus produces temperature information by determining a first temperature difference $\delta T_1 = T_{8.6} - T_{10.0}$, a second temperature difference $\delta T_2 = T_{11.0} - T_{12.0}$, and adding the temperature differences δT_1, δT_2 to obtain a third temperature difference δT_3, and correcting said third temperature difference for elevation to produce a fourth temperature difference δT_4.

11. Apparatus as claimed in claim 2, configured to monitor said field of view for volcanic ash and wherein said temperature difference information is based on a

temperature difference between temperatures, $T_{11.0}$ and $T_{12.0}$ at wavelengths 11.0µm and 12.0µm for each portion of said field of view.

12. Apparatus as claimed in claim 11, wherein said alarm condition is met if $\delta T_{va} = T_{11} - T_{12} > \Delta T_E$, where ΔT is a temperature threshold, for at least a predetermined number of portions of said field of view.

13. Apparatus as claimed in claim 2, configured to monitor said field of view for atmosphere dust and wherein said temperature difference information is based on temperatures $T_{8.6}$, T_{11} and T_{12} at three wavelengths 8.6µm, and 12.0µm.

14. Apparatus as claimed in claim 13, wherein said temperature difference information is determined for each portion by the equation $\delta T_{dust} = aT_{8.6} + bT_{11} + cT_{12}$ where a, b and c are constants.

15. A method of monitoring a field of view comprising:

monitoring, at a remote location, a field of view for at least two wavelengths of infrared radiation corresponding to an adverse atmospheric condition and producing temperature information;

processing said temperature information to determine whether an alarm condition for said adverse condition is met; and

transmitting data to a monitoring station if said alarm condition is met.

16. A method as claimed in claim 15, wherein said processing said temperature information to produce temperature difference information and processing said temperature difference information to determine whether said alarm condition is met.

17. A method as claimed in claim 15, comprising producing temperature difference information that pertains to a plurality of portions of said field of view.

18. A method as claimed in claim 17, comprising processing said temperature information to produce temperature difference information as a temperature difference image and wherein said plurality of portions of said field of view are represented as pixels in said temperature difference image.

19. A method as claimed in claim 17, comprising producing temperature information in the form of temperature difference values for said plurality of portions of said field of view.

20. A method as claimed in claim 19, comprising statistically evaluating said temperature values against an expected distribution of temperature values.

21. A method as claimed in claim 16, comprising producing temperature difference information by determining a first temperature difference $\delta T_1 = T_{8.6} - T_{10.0}$, a second temperature difference $\delta T_2 = T_{11.0} - T_{12.0}$, and adding the temperature differences δT_1, δT_2 to obtain a third temperature difference δT_3, to thereby monitor said field of view for sulphur dioxide.

22. A method as claimed in claim 16, wherein said alarm condition is met if $\delta T_{va} = T_{11} - T_{12} > \Delta T_E$, where ΔT is a temperature threshold, for at least a predetermined number of portions of said field of view, whereby said field of view is monitored for volcanic ash.

14. Apparatus as claimed in claim 16, wherein said temperature difference information is determined for each

portion by the equation $\delta T_{dust} = aT_{8.6} + bT_{11} + cT_{12}$ where a, b and c are constants, whereby said field of view is monitored for atmospheric dust.